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Music Sharing in Russia: Understanding Behavioral Intention and Use of Music Downloading

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MUSIC SHARING IN RUSSIA: UNDERSTANDING BEHAVIORAL INTENTION AND USE OF MUSIC DOWNLOADING

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ABSTRACT

This paper reviews attitudes toward acceptance and usability of file sharing for music downloading in Russia. There is a significant issue with respect to the copyright law legislation and enforcement. Since infrastructure, market conditions, social and economical situations in developing countries are different from those of developed countries, we decided to apply a well establish theory to a new population. We surveyed 67 young Russian people in terms of their attitudes, perceptions, and technology use for music downloading. As a general model, over 52% amount of variance was explained for in behavioral intention. However, perceived ease of use was not found to be significant or have any predictive power for behavioral intention. More importantly, external variables related to age, gender, Internet connection, and education were not found to have influence on any of the hypothesized variables. This study makes a first step at examining the way music downloading technologies are used in Russia.

Keywords
Peer-to-peer, file sharing, music downloading, Russia, technology acceptance

INTRODUCTION

The recording industry seems to be one of the areas in which the new digital technologies are bringing about the most tangible changes in distribution processes. The recent downturn in CD sales and the rapid diffusion of file sharing are creating the scenario where companies in the music industry are having to change their approach to music downloading. In a recent study by Molteni and Ordanini (2004), consumer behavior patterns show different determinants motivating people to download music from the Internet, the roles included explorers, duplicators, curious listeners, mass listeners, and occasional listeners. Each of these groups is increasing in numbers annually. As each of these clusters increases in numbers, music labels may increase the loyalty of certain groups by organizing virtual communities.

It is commonly believed that countries with poor socio-economic situations will more highly engage in piracy of digital media due to poor enforcement of copyright laws. Contrary to this belief, the Pew Internet Project estimated that the lawsuits around P2P services convinced around 6 million former American downloaders to stop, while estimate 5 million new users started downloading music (Rainie, et al., 2005). In this paper we investigate online consumer behavior in the usage of file sharing technologies by music consumers in Russia. In order to understand better the phenomenon of music downloading in Russia, we conducted a survey of young Russians concerning their habits with respect to music downloading, technology acceptance and behavioral intention to download music.

The need for the research of consumers in global P2P networks is stated in the previous work by Amoroso and Guo (2006), Amoroso and Koster (2003), and Amoroso (2004, 2005, 2006). Researchers surveyed the dependencies of music sales by age of consumer and type of music as reported by RIAA in 2005 and showed respondent demographics in the areas of retail buying, expected downloading patterns, and lost income to music record companies in the United States. Although previous studies were conducted only within developed countries, we are testing the applicability of the TAM framework for the developing technological society. We would like to clarify the terminology that we used. We differentiate downloading from file sharing. D*ownloading* is defined as copying digital files from a server, network or other media to a local file repository. We define *file sharing* as the movement of digital files from and to file repositories, where centralized "servers" may or may not be present. This research focuses on the music file sharing among computers. We used the technology acceptance model as the theoretical base for this research. We extended the model to include variables such as music buying patterns, type of connection, previous experience, and education.

THEORETICAL FOUNDATIONS

Affect of Music Downloading on Piracy

An important step toward understanding piracy behavior of online music is an understanding of consumer attitudes toward music downloading. In a study conducted by Morton (2004), it was found that perceived deterrence was a key factor in averting piracy. This could be particularly important when studying government policies in Russia. He introduced the construct of *deindividuation* where the online consumer feels separated from other users, even when using peer-to-peer software; this construct having a negative affect on the effectiveness of deterrence. In other words, the deindividualized consumer may not worry about deterrence because of the lack of collectivism (again which may be different in Russia).

Some studies have found that file sharing technologies – broadband Internet connectivity, digital compression, file quality, and peer-to-peer applications – have dramatically increased the online sharing of digitized products and therefore promoted the piracy of copyrighted music. The phenomenon of sharing music files online has been dramatically accelerated by various software packages, lower data storage costs, higher bandwidths, and the ability to send large collections of music via email. Bhattacharjee, et al. (2003) found a number of factors, mostly associated with file sharing technologies, that influenced music "freeloading" or piracy. Inclination to pirate music increases dramatically as Internet bandwidth improves, with similar trends for all music categories. Even though some music downloaders experienced loses in sound quality due to compressed formats or experienced corrupt downloads, 90% of respondents in this study continued to download music, indicating that the quality of downloading music alone is not a significant determining factor leading to a purchase. This finding has ramifications for the recording industry in that different economic models are unlikely to change consumer behavior with respect to music downloading. But is this the case in Russia?

Russia's Piracy Problem

Among the world leaders in global music piracy, Russia has one of the largest piracy problems (Mertens, 2005). In 2005, its piracy market value for music stood at $332 million. According to Mertens, even with pressure from the World Trade Organization, Russia has failed to curb its piracy problems and because of its failure to conform to WTO standards has failed to meet its admission requirements. Chiou, Huang, and Lee (2005) categorized music piracy into two clusters: (1) unauthorized downloading (and duplication) and (2) pirated music product purchasing. They found that satisfaction with current copyrighted music products was the basis for promoting consumers to refrain from unauthorized downloading or purchasing pirated music products. Perceived risk in file sharing was found to have a strong deterrent on piracy behaviors. Social consequences and factors such as image were found to be significant in either promoting or deterring piracy behaviors. In Russia, it was reported to have a CD piracy rate of 64 percent with 34 illegal CD plants operating with a manufacturing capacity of 390 million CDs annually, despite legitimate sales of only 30 million CDs (Merten, 2005).

In January, 2005, The Recording Industry Association of America (RIAA) submitted a report to the federal government which outlines piracy problems in more than 60 countries and is expected to guard "America's present and future global competitiveness". Neil Turkewitz, the Executive Vice President, International of RIAA stated that "USTR (United States Trade Representative) identify Russia as a Priority Foreign Country…" and "… a nation whose de facto policy permits the unchecked activity of commercial pirates". The amount of music downloading from Russian IP addresses has grown into serious problem for RIAA by December 2005. RIAA insisted on Russia to be expelled from the World Trade Organization and to receive trade benefits from the United States unless it complies with the digital piracy legislation (Davison and Cotton, 2005).

Russia has basically two problems with respect to piracy issues: (1) mush of the legislation is lacking and (2) little, if any, real penalty for infringement – leading to a lack of solid enforcement. The Criminal Code does not contribute to an adequate deterrence of commercial piracy. The fine amounts are so low that they provide little deterrence effect according to the 2003 Special 101 Report Russian Federation International Property Alliance 265 (Merten, 2005). International organizations, such as the IFPI, have also helped reduce piracy by assisting in plant raids, lawsuits and solving cases where there have been intellectual property violations.

Music Downloading in Russia

How big is the music downloading industry? The Internet provides simplified file sharing capabilities for distribution of digital media worldwide. Low cost and global availability of digitalized copies of artists' intellectual property make file sharing or peer-to-peer (P2P) networks very appealing. According to Liang et al. (2005), on a

typical day, KaZaA – one of the most popular files sharing application – has more than three million users logged in and sharing 5,000 terabytes of content. Record industry report that the dollar value of recorded music sales has declined in the USA and in the world over the last few years. Forrester research estimated $700 million loss in CD sales for the music industry in 2003 due to sharing copyrighted songs via file sharing applications (Amoroso, 2003). For the year 2005, Mertens quoting the Recording Industry Commercial Piracy Report estimated an annual loss of revenue around $4.5 billion dollars.

Will the technology infrastructure of specific countries impact file sharing of music? It is commonly believed that countries with poor socio-economic situations will more highly engage in piracy of digital media due to poor enforcement of copyright laws. In January 2005, The Recording Industry Association of America (RIAA) submitted a report to the federal government which outlines piracy problems in more than 60 countries and is expected to guard "America's present and future global competitiveness." (IFPI, 2005).

Russian websites have been selling music via the Internet for many years. The outlets like AllofMP3 or MP3Search, are semi-legal Russian MP3-download services which operate with no agreement from the British Phonographic Industry (BPI), RIAA or any other lobbying group representing the major music labels. Russian laws do not apply to digital media but are limited to physical media only. The RIAA attempted to shut down AllofMP3, but that did not result in a response from Russian prosecutors. Sites like AllofMP3 and MP3Search pose a great threat to the RIAA-controlled sites like iTunes and Napster. Russian music sites charge only about 10% of protected music.

In many cases, a full music album in digital format can be purchased for under $2 compared to $9.99 on iTunes. Music is sold by the megabyte rather than by the song, which equates to roughly ten cents a song. Russian music sharing services not only supply cheaper alternatives for music downloading but provide music in various formats, ranging from WAV-rips (highest quality), to MP3 (typical P2P quality) and even in formats like OGG, which is considered a high-quality compression, much better than MP3. (http://www.zeropaid.com/news/6346/). Allofmp3.com has had great popularity in Russia and the legality of its distribution processes are in question. The website claims that all materials in MediaServices (its parent company) are available for distribution through the Internet in accordance with the private license obtained from the Russian Multimedia and Internet Society (ROMS). ROMS is a national organization formal Russian organization to manage authors' intellectual property rights and protection of their digital interactive works, including distribution on the Internet.

RESEARCH METHODOLOGY

In this paper, we present a research model and hypothesis which were extensively studied for an American and Western European populations from developed countries. The model examines the propensity of music consumers to adopt P2P file sharing technologies in developing currently underserved countries. We extrapolated hypotheses derived from western literature on Russian consumers. Russia is a developing country from socio, economical and technology perspectives which poses high thread to RIAA. According to our review of the literature, TAM was not tested in Russia, neither were aptitudes for file sharing. Based upon the empirical research of TAM constructs, the proposed model (Figure 1 adopted from Amoroso and Gou (2006) studies the impacts of these constructs on consumer adoption patterns. The modified TAM includes six external variables (age, buying patterns, type of Internet connection, gender, experience using file sharing, and education) that have been shown empirically to effect the consumers' propensity to adopt. The *actual usage* construct was measured as a perceived level of use of P2P downloading technologies, knowing that there are conflicting opinions on the reliability of such self-reported measures (Snir, 2003; Song and Walden, 2003; Straub, etc., 1995; Taylor and Todd, 1995). The level of use during one week time frame was used in conjunction with relative downloading frequency and the likelihood of adopting file sharing technology for downloading music.

A survey was conducted among Russian university students and young professionals with total of 67 respondents. All the measures in the study were derived from previously validated instruments]. Measures for the constructs involved acceptable reliability and the evidence of factorial validity. Hypothesis testing methods were used to establish relationship among constructs. The proposed model was partially supported. We discuss the implications to the industry and future research.

Hypotheses

Perceived ease of use has been found to influence usefulness, attitude, intention, and actual use. Perceived usefulness is based on expectancy theory which is concerned with an individual's beliefs in the decision making process (Taylor and Todd, 1995). Perceived usefulness is the degree to which an individual believes that using a

particular system would enhance his or her performance. It has been found that the relationship between perceived usefulness and usage of the system is strong and consistent moderated through behavioral intention. Behavioral intention (BI) is a measure of the strength of one's intention to perform a specified behavior. Venkatesh and Davis (1996, 2000) reported that behavioral intention is a good predictor of actual usage of a technology which has received numerous empirical supports from prior studies.

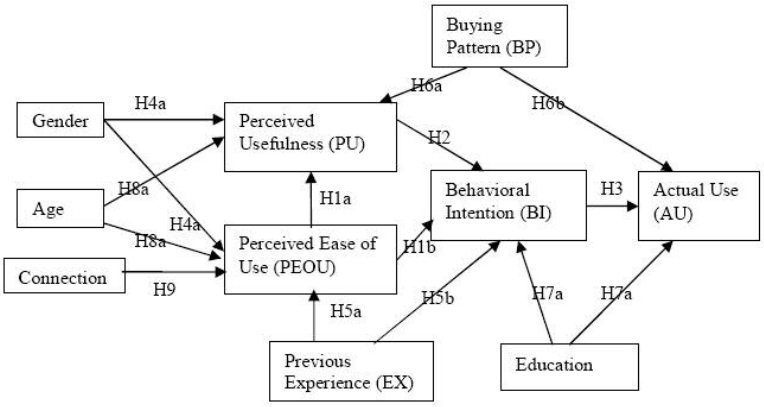

Figure 1. Research Model of Acceptance of File Sharing Technology

Perceived usefulness of peer-to-peer file sharing included measuring the ability to accomplish the downloading of music easier, improved the efficiency of downloading music, increased the likelihood of success in downloading music, and provided alternatives to purchasing music CD's at retail. *Perceived ease of use* measured the easiness of learning to download music on the Internet, easiness to obtain the desired music file, whether the processes for downloading music are clear and understandable, ease of file sharing, ease of becoming skillful at using music downloading programs, and overall ease of downloading technologies in general. *Behavioral intention to download music* via the Internet was measured as a combination of carrying out the downloading task and planned use of the downloaded music files (Agarwal and Karahanna, 2000; Chau and Hu, 2001; Amoroso and Gardner, 2004). Measures of behavioral inclinations now and in the future were also used (Amoroso and Gardner, 2004; Venkatash, 1999).

Hypothesis 1: *Perceived ease of use (PE) is positively correlated to the perceived usefulness (PU) and the consumer's behavioral intention (BI) to download music.*

H1a: *Perceived ease of use is related to perceived usefulness.*

H1b: *Perceived ease of use is related to behavioral intention to download music.*

Hypothesis 2*: Perceived usefulness is positively correlated to the consumer's behavioral intention to download music.*

Hypothesis 3: *Behavioral intention to download music is positively correlated to the consumer's actual downloading of music (AU).*

In addition to the core TAM constructs, gender and experience have been studied often in TAM literature. Studies have reported differences between men and women on their perception and decision regarding information technology (Gefen and Straub, 1997; Venkatash and Davis, 2000). Song and Walden (2003) conclude that gender is significant with respect to the effects of information cascades and network externalities in consumer adoption of file sharing technologies. Specifically, female likelihood of the adoption decision is correlated with the relative level of adoption (network externalities). Since file sharing technologies are new and user interfaces are relatively more complex, we hypothesize that women will rate the perceived ease of use lower than men. As suggested by Gefen and Straub (1997), *gender* was measured as a single item (female or male).

Hypothesis 4: *Gender will influence the perceived usefulness and perceived ease of use.*

H4a: *Women will rate the perceived usefulness of P2P technologies lower than men will.*

H4b: *Women will rate the perceived ease of use of P2P lower than men will.*

Ajzen and Fishbein (1980) demonstrate that prior experience is a determinant of behavior. Many studies have established a positive relationship between experience with computing technology and other constructs, such as perceived ease of use (Agarwal and Prasad, 1999; Chau and Hu, 2001), and intention to use (Song and Walden, 2003; Venkatash and Morris, 2000). In contrast, the data show that downloading music is one of the few activities for which experience does not play a key role; it is more or less equally popular pastime among new users and seasoned veteran users alike (MacCallum, 1998). However, in 2003 report, 59% music down-loaders have experience over three years (Madden and Rainie, 2005).

> ***Hypothesis 5:*** *Experience (EX) will influence the perceived ease of use and the behavioral intention to download music using P2P technology.*

The *experience using file sharing* construct was examined by measuring the perceived experience using music downloading technologies, coupled with the number of years using file sharing software to download music on the Internet (Legris, et al., 2002; Venkatesh, 2000). Customer buying patterns are differentiated by their preference for file sharing one side of the product continuum and their preference for CD music on the other of the continuum (Rose, et al., 1999(. Consistent with the criticism of the industry, Snir (2003) found that buying patterns will affect the actual downloading of music. The greater the propensity of the consumer to prefer using file sharing technologies and Internet-based music over CD music, the greater the perceived usefulness of file sharing technology. Amoroso and Koster (2003) found that people who buy music online also buy retail CDs, or return CDs. Strong correlations exist with consumers who downloaded music to preview songs and those who plan on spending more on music, either in retail stores or online. In addition, strong correlations between the behavior of downloading songs to preview and downloading music to the hard drive and burning were found. While examining the bundling and distribution of music on the Internet, Altinkermer and Bandyopadhyay (2000) proposed a model that analyzes the demand functions of different classifications of buyers. They also report that the music industry turmoil is created as a result of a general lack of understanding of the consumer's propensity to utilize P2P technologies and their aversion to high music pricing. We examined *buying patterns* with measurements of frequency of online versus offline purchase of CD's (Amoroso, 2003), the tendency to buy retail, burn, and return (Amoroso, 2005), and the interest in use of fee charging Internet music downloading services (per use, per song, subscription).

> ***Hypothesis 6:*** *Buying patterns (BP) will influence the perceived usefulness and the actual downloading of music.*
>
> > ***H6a:*** *Consumers that have a greater propensity toward file sharing and Internet music will have a greater perceived usefulness of P2P technologies.*
> >
> > ***H6b:*** *Consumers that have a greater propensity toward file sharing and Internet music will download music to a greater extent.*

Another often studied individual difference regarding technology acceptance is levels of education. The effect of education has usually been posited and found to be positive on the adoption of technology [2], [33]. However, in the context of music downloading, the possibility of a negative correlation between level of education and the specific information technology of Internet music downloading was discovered by Amoroso and Koster (2003) while performing an analysis of file sharing on the Internet, and in a recent report by Madden and Lenhart (2005), it is determined that 23% of online college graduates are downloading music files, as compared to 39% of Internet users with lower levels of education. In fact consumers that are more educated with respect to the ethical impacts of downloading music illegally will most likely not use file sharing technologies or maybe more educated people have more money to buy the music they like. To test this possible link we propose that education will be negatively correlated with both the intention to download and the actual user downloading behavior. We examined *education* with a single item measurement similar to that of the age variable. The primary education level of interest was that of the undergraduate, based upon previous research (Amoroso, 2005); MacCallum, 1998).

> ***Hypothesis 7:*** *Level of education will influence both the behavioral intention to download music and the actual downloading of music.*

Studies have reported links between age and technology adoption (Anderson and Gerbing, 1998). Rogers (1995) concludes that about half of the studies on the subject show no relationship in the TAM model. One example cited is that of Sindi (1992) who found no direct effect between age, attitudes and intentions toward using an expert system. There are, however, several published surveys that report demographic results for Internet users involved in the downloading of music files. The older an Internet user, the less likely he or she is to have downloaded music (Madden and Lenhart, 2005; Oberholzer and Strumpf, 2004). Similar results can be found in a market research study

(IFPI, 2005) surveying 7,688 Internet users around the world. Amoroso and Koster (2003) reported similar findings with 63% of younger respondents indicating they downloaded music to their hard drive and later burned a CD for listening. Of the respondents, 92% were between 18 and 33 years of age. Therefore, it is obvious that age plays a role with respect to Internet users who actually download music files. What is less clear is how the age influences the primary constructs of the TAM. *Age* was measured as a single item using a Likert type scale of 1 to 5, for five age groups. Three were narrowly defined (2 = 19-20, 3 = 21-22, 4 = 23-24) and two were broadly defined (1 = <18, 5 = >25). The age variable range was based upon earlier studies of Internet users who had downloaded music files (Amoroso, 2005; Madden and Lenhart, 2005), and given that the survey sample population was primarily university students.

> ***Hypothesis 8:*** *Age will influence the perceived usefulness and perceived ease of use for downloading music.*

Since it takes considerable time, it is intuitive that the faster the Internet connection, the greater the perceived ease of use of Internet music downloading technologies. One study of factors affecting e-commerce adoption by Lee and Park (2001) reports that only 42% of their survey respondents had Internet connection speed exceeding 56kbps. This result was similar to that of Rose, Khoo, and Straub (1999). However, it is found 76% of survey respondents had Internet access speeds greater than 56kbps in (Amoroso, 2005). The differences may be explained in other survey demographic differences (survey population biases), or the increased availability of broadband Internet access between 2001 and 2006. Correspondingly, Madden and Lenhart (2005) report that 41% of Internet users with a broadband connection at home have ever downloaded music versus a quarter of dial-up users. Of additional interest is a study by Xia and Sudharshan (2000), who report that interruptions that limit online consumers' concentration reduce Web users' satisfaction with online shopping. Davison and Cotton (2005) reported that the strongest Internet activities associated with type of Internet connection are downloading music, paying bills online, and banking. Overall, those with broadband connections are significantly more likely to spend longer on the Internet than those with dial-up connections. Their findings were consistent with those of Horrigan and Rainie 2003). The *type of Internet connection* was a single item measure.

> ***Hypothesis 9:*** *The type of Internet connection will influence the perceived ease of use of music downloading technologies.*

Data Collection

Data were collected via a survey of university students concerning their habits with respect to music downloading and their future music buying behavior. A total 67 university students and young professional participated in the study, 55 male and 12 female. A majority of the participants were young professional older than 25 years old. They enjoyed relatively high speed Internet connection (Cable/DSL) which is dramatically higher than national average in the USA of 60% (IFPI, 2005). 70% of respondent have Bachelor degrees, and 14% are still in college. Most of them started downloading music when they graduated universities (39%) or were still in college (33%). Only 11% of respondent started music downloading in high school.

To assess the reliability of the questionnaire, Cronbach alpha coefficients for the various subscales were calculated. Cronbach's alpha is a numerical coefficient of reliability and the most widely used measure of internal consistency. An alpha coefficient of .70 or greater for an existing instrument is considered an acceptable measure of reliability. In the current study, Table 2 shows that the Cronbach's alpha for all subscales met or exceeded the required lower limit with the exception of actual usage which was slightly below .70.

Construct	Description	No Items	Reliability
PU	Perceived usefulness	5	0.859
PE	Perceived ease of use	6	0.825
ATT	Attitudes	6	0.731
BI	Behavioral Intentions	8	0.727
EU	Experience using P2P	5	0.787
BP	Buying patterns	8	0.738

Table 1. Reliability Analysis

We used factor analysis as an assessment of construct validity. This research fits the approach where the constructs related to the acceptance of Internet technologies by consumers are based on a substantial body of prior research and

where the scale development fits the construct's conceptual meaning as a method of ensuring construct validity. We conducted principal components analysis with varimax rotation yielding a nine-factor solution with eigenvalues greater than 1.0, explaining 82.2% of the variance in the data set.

We examined the rotated factor matrix for items that did not load strongly on any factor (<0.60), that loaded on another factor greater than the intended component, or that loaded relatively equally on more than one factor. These conditions would indicate a less than optimum validity of the item to measure what it was intended to measure and instead might indicate it was measuring something else. Most of the items for the constructs loaded cleanly on separate factors with the exception of *buying patterns* which loaded on two factors; the first included those items that are related to how often the consumer buys and the second factor included those where the respondent indicated how interested he or she would be in buying music in certain ways.

RESULTS OF THE DATA ANALYSIS

Our next step of data analysis was to test the proposed hypothesis using correlation analysis and analysis of variance (ANOVA) complimented by regression analysis and independent T-tests. The first set of data analysis was achieved using multivariate Pearson correlation analysis on all the variables to find potential relationships that may warrant further analysis. The second set of exploratory data analyses was conducted using the general linear model. A summary of hypotheses support is shown in Table 6. In all cases, the bivariate correlations substantiated the regression loadings.

Regression analysis was used to test the hypotheses and allow further validation of the instrument. Table 2 shows the linear regression model for behavioral intention. The variance explained by the independent variables related to behavioral intention was 52.1%. Three variables were found to be significant at p >= .05: perceived usefulness, experience, and buying patterns and can contribute to the overall variance in explaining behavioral intention. As expected, H2: *Perceived usefulness is positively correlated to the consumer's behavioral intention to download music* was supported*, (r=.417, p=0.000)*. Hypothesis H5b showed a strong correlational relationship and regression variable loading for *experience using the Internet with behavioral intention* supporting the hypothesis (*r=.463, p=0.000).* The loading of *buying patterns* (H6a) was surprising as this variable was not predicted in the studies leading to the generation of hypotheses for this study. The *level of education* (H7a) was also not supported. *Perceived ease of use* was not loaded into the model, showing a lack of support for H1a.

Dependent Variable	R Square	F-value (sig)	Independent Variables	B	Std. Error	Std. Beta	t	Sig.
Behavioral Intentions	52.10%	6.952	Perceived Usefulness	0.203	0.901	0.278	2.244	0.029
		0.001	Perceived Ease of Use	0.039	0.124	0.043	0.314	0.755
			Education	0.012	0.081	0.017	0.147	0.883
			Experience Using Internet	0.249	0.083	0.356	2.999	0.004
			Buying Patterns	0.314	0.128	0.311	2.45	0.018

Table 2. Regression Analysis for Behavioral Intention

The analysis for actual use of file sharing software for music download is shown in Table 3. The linear regression model shows 29.1% of variance explained. The independent variables that loaded on actual usage showed a strong relationship between *behavioral intention to download and actual usage (r=.510, p=0.038)* and *experience using the Internet,* support H3. However, the relationships between behavioral intention to actual use (p=.737), buying patterns (p=0.911) and level of education (p=0.242) were not found to be statistically significant. However, hypothesis 6b: *Buying patterns (BP) will influence the actual downloading of music* was not supported. The *level of education* (H7b) was also not supported.

Dependent Variable	R Square	F-value (sig)	Independent Variables	B	Std. Error	Std. Beta	t	Sig.
Actual Use	29.10%	2.418	Behavioral Intentions	0.053	0.157	0.055	2.664	0.003
		0.022	Buying Patterns	-0.017	0.148	-0.017	-0.114	0.911
			Education	-0.106	0.089	-0.156	-1.183	0.242
			Experience Using Internet	0.242	0.096	0.355	2.518	0.015

Table 3. Regression Analysis for Actual Use

The hypothesis 5a related to *experience (EU) will influence the perceived ease of use of music downloading technology* was supported. Hypotheses dealing with external variables, such as *gender* (H4b), *age* (H8b), and *Internet connectivity* (H9) were not supported.

Dependent Variable	R Square	F-value (sig)	Independent Variables	B	Std. Error	Std. Beta	t	Sig.
Perceived Ease of Use	20.60%	3.741	Experience Using Internet	0.313	0.092	0.404	3.402	0.001
		0.009	Internet Connectivity	0.136	0.098	0.172	1.395	0.168
			Age	0.072	0.066	0.129	1.056	0.295
			Gender	-0.297	0.219	-0.163	-1.358	0.181

Table 4. Regression Analysis for Perceived Ease of Use

Table 5 shows the regression for perceived usefulness. The only independent variable that came into the model was *perceived ease of use* supporting H1b, There was no significant relationship between *buying patterns and perceived usefulness* (p=0.281) as hypothesized in H6a. There was not found any relationship between *age and perceived usefulness* as predicted in H8a.

Dependent Variable	R Square	F-value (sig)	Independent Variables	B	Std. Error	Std. Beta	t	Sig.
Perceived usefulness	20.20%	3.66	Age	0.045	0.08	0.067	0.562	0.576
		0.01	Gender	0.032	0.271	0.014	0.118	0.907
			Perceived Ease of Use	0.512	0.148	0.413	3.462	0.001
			Buying Patterns	0.182	0.166	0.131	1.087	0.281

Table 5. Regression Analysis for Perceived Usefulness

DISCUSSION

The purpose of this paper is to understand the music downloading patterns in Russia with relation to technologies and adoption. This research surveyed Russian consumers to address their needs and propensity to adopt Internet technologies. This research effort tried to understand the determining factors of music consumers utilizing file sharing technologies. It related individual characteristics and user perceptions to actually behavior of music downloading, which was thought as a threat by music industry. Table 6 shows the support or lack of support for each of the hypotheses.

Hypothesis	Variable 1 (Independent)	Variable 2 (Dependent)	Correlation	Sig	Support	Regression Analysis	Sig	Support
1a	Percieived Ease of Use	Behavioral Intention	r =.365	0.000	yes	β = .104	0.365	no
1b	Perceived Ease of Use	Perceived Usefulness	r = .425	0.000	yes	β = .425	0.011	yes
2	Perceived Usefulness	Behavioral Intention	r = .417	0.000	yes	β = .203	0.029	yes
3	Behavioral Intention	Actual Usage	r = .510	0.038	yes	β = .055	2.664	yes
4a	Gender	Perceived Usefulness	r = -.162	0.901	no	β = .032	0.907	no
4b	Gender	Perceived Ease of Use	r = -.117	0.406	no	β = -.297	0.179	no
5a	Experience using P2P	Perceived Ease of Use	r = .364	0.003	yes	β = .313	0.001	yes
5b	Experience using P2P	Behavioral Intention	r = .463	0.000	yes	β = .249	0.004	yes
6a	Buying Patterns	Perceived Usefulness	r = .149	0.245	no	β = .182	0.281	no
6b	Buying Patterns	Actual Usage	r = .113	0.377	no	β = -.017	0.911	no
7a	Level of education	Behavioral Intention	r = .881	0.492	no	β = -.012	0.883	no
7b	Level of education	Actual Usage	r = -.236	0.062	no	β = -.106	0.224	no
8a	Age	Perceived Usefulness	r = .107	0.406	no	β = .045	0.576	no
8b	Age	Perceived Ease of Use	r = .117	0.362	no	β = .069	0.295	no
9	Internet Connection	Perceived Ease of Use	r = .141	0.271	no	β = .136	0.168	no

Table 6. Summary of Hypotheses Support

We found that perceived usefulness is related to the consumer's behavioral intention to download music. Also, we found that behavioral intention was strongly related to actual use. We found that experience will influence the ease of use and behavioral intention to download music using music downloading technology. We found no support for buying patterns and its influence on perceived usefulness of music downloading technologies. Surprisingly, we did

not find any significant relationships between education, gender, age and Internet connection with any of the hypotheses.

In the correlation analysis, other relationships were found. Older people have more positive attitude toward file sharing systems but use those networks much less. At the same time older respondents take consequences into consideration more seriously and think about discontinuing using file downloading software illegally. More educated people start using file sharing earlier and have faster Internet connections. People who reported higher levels of P2P features and functionality have a greater experience using file downloading software. Interestingly, buying patterns was related, but not hypothesized, to behavioral intention to use file sharing programs.

Although the study was conducted with a limited sample size, the findings maintain merits to some extent because of the reliability and validity of the survey instrument and the strong theoretical foundation of the constructs. One limitation of the study is online administration of the instrument to a selected age group. The findings of this study have theoretical as well as operational significance for future studies. Another limitation of this study is the data separation between respondents downloading music legally and illegally. We plan to extend the study in Russia in the future to consider the legality issues and the impact of these issues on piracy.

This research contributed to our knowledge of music downloading behavior from the perspective of consumers living in Russia. Our survey shed some light on the chances of success of commercial music downloading and what music downloading features are important to Russian consumers. Music downloading technology is powerful and has become widely used by Internet users. We believe the technology can be used to the advantage of both consumers and music industry.

This research will be extended to examine cross-cultural music downloading patterns in order to make comparisons on the nature of downloading technologies across cultures. Based upon this study, we have found that many of the "key" TAM variable loadings were different than hypothesized, especially with respect to external variables. We feel that culture impacts many of the variables that normally would have been shown to be statistically correlated. Therefore, we anticipate conducting this study in different countries to ascertain the differences in downloading patterns. We also intend to address the constructs of risk, ethical orientation, and consequences for downloading music in Russia.

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